



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,862	12/20/2005	Hiroyuki Anzai	UNIU90.001APC	5508

20995 7590 06/30/2009  
KNOBBE MARTENS OLSON & BEAR LLP  
2040 MAIN STREET  
FOURTEENTH FLOOR  
IRVINE, CA 92614

EXAMINER
----------

EASHOO, MARK

ART UNIT	PAPER NUMBER
----------	--------------

1796

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

06/30/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/561,862	<b>Applicant(s)</b> ANZAI ET AL.	
	<b>Examiner</b> Mark Eashoo	<b>Art Unit</b> 1796	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 24 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-201251 to Ota et al. in view of US 5,895,793 to Kitamura et al. The citations for JP 2002-201251 have been taken from the English-language abstract and machine translation of the document made available by the Japan Patent Office.

**Regarding Claims 1 and 3.** Ota et al. teach a composition for preparing a rigid polyurethane foam comprising a polyol, a blowing agent, foam stabilizer, and a catalyst (Abstract: "Solution"; Detailed Description: Paragraphs 9, 11, and 12; Detailed Description: Example 1). The blowing used is a mixture of 1 – 75 percent weight HFC-245fa and 99 – 25 percent weight HFC-365mfc (Abstract: "Solution").

Ota et al. do not expressly teach the composition further comprises a compatibilizer. However, Kitamura et al. teach a blowing agent composition useful in forming polyurethane foams comprising HFC-245fa and a stabilizing compound such as N,N-dimethylacetamide. The stabilizer is incorporated in the composition in an amount of 0.001 to 10 parts by weight per 100 parts HFC-245fa (Column 2, Lines 7 – 53). Ota et al. and Kitamura et al. are analogous art as they are from the same field of endeavor, namely compositions for preparing polyurethane foams comprising HFC-245fa as a blowing agent. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use a stabilizer in the amount taught by Kitamura et al. in the composition taught by Ota et al. The motivation would have been that use of the stabilizers taught by Kitamura et al. in conjunction with HFC-245fa prevents HFC-245fa from

Art Unit: 1796

deactivating the catalyst when forming a polyurethane foam or causing yellowing in the final foam product (Kitamura et al.: Column 1, Lines 27 - 31 and 53 - 60; Column 1, Line 66 - Column 2, Line 6).

**Claims 4 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-201251 to Ota et al. in view of US 5,895,793 to Kitamura et al., as applied to Claims 1 and 3 above, and further in view of US 6,319,962 to Singh et al. The citations for JP 2002-201251 have been taken from the English-language abstract and machine translation of the document made available by the Japan Patent Office.

**Regarding Claims 4 and 5.** Ota et al. teach the composition of Claim 3 wherein the polyol may be prepared by reacting alkylene oxide with an initiator (Detailed Description: Paragraph 9). Ota et al. are silent regarding the specific initiators which may be used. However, Singh et al. teach making polyurethane foams with polyether polyols that are prepared by the reaction of alkylene oxide with an initiator such as ethylene diamine or sorbitol (Column 6, Lines 4 – 10). Ota et al. and Singh et al. are analogous art as they are from the same field of endeavor, namely rigid polyurethane foams. At the time of invention, it would have been obvious to a person of ordinary skill in the art to prepare the polyols taught by Ota et al. using the initiators taught by Singh et al. The motivation would have been that the initiators taught by Singh et al. are suitable for the preparation of polyethers useful in preparing rigid polyurethane foams (Singh et al.: Column 4, Line 65 – Column 5, Line 2).

**Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-201251 to Ota et al. in view of US 5,895,793 to Kitamura et al., as applied to Claims 1 and 3 above, and further in view of US 6,319,962 to Singh et al. and US 6,313,060 to Sugiyama et al. The citations for JP 2002-201251 have been taken from the English-language abstract and machine translation of the document made available by the Japan Patent Office.

**Regarding Claim 6.** Ota et al. teach the polyol composition of Claim 3 but do not teach it comprises an aromatic polyol obtained by addition of an alkylene oxide to a polyfunctional active hydrogen

Art Unit: 1796

compound having an aromatic ring. However, Sugiyama et al. also teach a polyether polyol produced by addition of an alkylene oxide to a polyhydroxy compound (Column 8, Lines 12 – 20). Sugiyama et al. specifically cite bisphenol A, a polyfunctional active hydrogen compound with an aromatic ring, as a suitable polyhydroxy compound for reaction with the alkylene oxide (Column 8, Lines 26 – 35). Ota et al. and Sugiyama et al. are analogous art as they are from the same field of endeavor, namely polyurethane foams. At the time of invention, it would have been obvious to a person of ordinary skill in the art to include the aromatic polyol taught by Sugiyama et al. in the polyol composition taught by Ota et al. The motivation would have been that the polyether polyol taught by Sugiyama et al. has been found to minimize problems, such as a decrease in hardness and deterioration of compression set, associated with polyurethane foams prepared from other, conventional polyols (Sugiyama et al., Column 9, Lines 35 - 42).

Ota et al. do teach the polyol composition may comprise a polyester prepared from the reaction of a polycarboxylic acid and a polyhydric alcohol (Detailed Description: Paragraph 9). Ota et al. are silent regarding specific polycarboxylic acids that may be used. However, Singh et al. also teach preparing polyester polyols from the reaction of a polycarboxylic acid and a polyhydric alcohol. Suitable polyester polyols include aromatic polyester polyols prepared using an aromatic polycarboxylic acid (Column 5, Lines 13 – 37). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use an aromatic polycarboxylic acid when preparing the polyester polyol taught by Ota et al. The motivation would have been that aromatic polyester polyols impart advantages to polyurethane foam such as improved heat resistance in the foam product.

**Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-201251 to Ota et al. in view of US 5,895,793 to Kitamura et al. The citations for JP 2002-201251 have been taken from the English-language abstract and machine translation of the document made available by the Japan Patent Office.

**Regarding Claim 2.** Ota et al. teach a method for preparing a rigid polyurethane foam comprising reacting an isocyanate with a polyol component in the presence of a blowing agent, a foam stabilizer, and a

Art Unit: 1796

catalyst (Abstract: "Solution"; Detailed Description: Paragraphs 9 - 12; Detailed Description: Example 1).

The blowing used is a mixture of 1 – 75 percent weight HFC-245fa and 99 – 25 percent weight HFC-365mfc (Abstract: "Solution").

Ota et al. do not expressly teach the composition further comprises a compatibilizer. However, Kitamura et al. teach a blowing agent composition useful in forming polyurethane foams comprising HFC-245fa and a stabilizing compound such as N,N-dimethylacetamide. The stabilizer is incorporated in the composition in an amount of 0.001 to 10 parts by weight per 100 parts HFC-245fa (Column 2, Lines 7 – 53). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use a stabilizer in the amount taught by Kitamura et al. in the composition taught by Ota et al. The motivation would have been that use of the stabilizers taught by Kitamura et al. in conjunction with HFC-245fa prevents HFC-245fa from deactivating the catalyst when forming a polyurethane foam or causing yellowing in the final foam product (Kitamura et al.: Column 1, Lines 27 - 31 and 53 - 60; Column 1, Line 66 - Column 2, Line 6).

**Claims 7 – 9 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-201251 to Ota et al. in view of US 5,895,793 to Kitamura et al. The citations for JP 2002-201251 have been taken from the English-language abstract and machine translation of the document made available by the Japan Patent Office.

**Regarding Claims 7 and 9.** Ota et al. teach a composition for preparing a rigid polyurethane foam comprising a polyol, a blowing agent, a foam stabilizer, and a catalyst (Abstract: "Solution"; Detailed Description: Paragraphs 9, 11, and 12; Detailed Description: Example 1). The blowing used is a mixture of 1 – 75 percent weight HFC-245fa and 99 – 25 percent weight HFC-365mfc (Abstract: "Solution").

Ota et al. do not expressly teach the composition further comprises a compatibilizer. However, Kitamura et al. teach a blowing agent composition useful in forming polyurethane foams comprising HFC-245fa and a stabilizing compound such as N,N-dimethylacetamide. The stabilizer is incorporated in the composition in an amount of 0.001 to 10 parts by weight per 100 parts HFC-245fa (Column 2, Lines 7 – 53).

Art Unit: 1796

At the time of invention, it would have been obvious to a person of ordinary skill in the art to use a stabilizer in the amount taught by Kitamura et al. in the composition taught by Ota et al. The motivation would have been that use of the stabilizers taught by Kitamura et al. in conjunction with HFC-245fa prevents HFC-245fa from deactivating the catalyst when forming a polyurethane foam or causing yellowing in the final foam product (Kitamura et al.: Column 1, Lines 27 - 31 and 53 - 60; Column 1, Line 66 - Column 2, Line 6).

**Regarding Claim 8.** Ota et al. teach the composition of Claim 7 is reacted with a polyisocyanate compound (Abstract: "Solution").

**Regarding Claim 13.** Ota et al. teach a method of making a rigid polyurethane foam in which the composition of Claim 7 is mixed with polyisocyanate and then foamed to produce a rigid foam product (Detailed Description: Paragraph 12 and Example 1).

**Claims 10 - 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-201251 to Ota et al. in view of US 5,895,793 to Kitamura et al., as applied to Claims 7 and 9 above, and further in view of US 6,319,962 to Singh et al. The citations for JP 2002-201251 have been taken from the English-language abstract and machine translation of the document made available by the Japan Patent Office.

**Regarding Claims 10 and 12.** Ota et al. teach the composition of Claim 9 wherein the polyol may be prepared by reacting alkylene oxide with an initiator (Detailed Description: Paragraph 9). Ota et al. are silent regarding the specific initiators which may be used. However, Singh et al. teach making polyurethane foams with polyether polyols prepared by the reaction of alkylene oxide with an initiator such as ethylene diamine or sorbitol (Column 6, Lines 4 - 10). At the time of invention, it would have been obvious to a person of ordinary skill in the art to prepare the polyols taught by Ota et al. using the initiators taught by Singh et al. The motivation would have been that the initiators taught by Singh et al. are suitable for the preparation of polyethers useful in preparing rigid polyurethane foams (Singh et al.: Column 4, Line 65 - Column 5, Line 2).

Art Unit: 1796

**Regarding Claim 12.** Ota et al. teach the polyol composition of Claim 9 may comprise a polyester prepared from the reaction of a polycarboxylic acid and a polyhydric alcohol (Detailed Description: Paragraph 9). Ota et al. are silent regarding specific polycarboxylic acids that may be used. However, Singh et al. also teach preparing polyester polyols from the reaction of a polycarboxylic acid and a polyhydric alcohol. Suitable polyester polyols include aromatic polyester polyols prepared using an aromatic polycarboxylic acid (Column 5, Lines 13 – 37). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use an aromatic polycarboxylic acid when preparing the polyester polyol taught by Ota et al. The motivation would have been that aromatic polyester polyols imparts advantages to polyurethane foam such as improved heat resistance in the foam product.

**Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-201251 to Ota et al. in view of US 5,895,793 to Kitamura et al., as applied to Claims 7 and 13 above, and further in view of US 6,319,962 to US 5,164,419 to Bartlett et al. The citations for JP 2002-201251 have been taken from the English-language abstract and machine translation of the document made available by the Japan Patent Office.

**Regarding Claim 14.** Ota et al. teach the method of Claim 13 but are silent regarding the NCO:OH ratio. However, Bartlett et al. also teach a method of making a rigid polyurethane foam in which the isocyanate index/NCO:OH ratio is preferably in the range of about 1.0 to about 4.0 (Column 5, Lines 9 – 14). Ota et al. and Bartlett et al. are analogous art as they are from the same field of endeavor, namely rigid polyurethane foams. At the time of invention, it would have been obvious to a person of ordinary skill in the art to react the polyol and isocyanate components taught by Ota et al. at the isocyanate index taught by Bartlett et al. The motivation would have been that the isocyanate index taught by Bartlett et al. provides advantages such as stiffness and minimal shrinkage in the final foam product.



Art Unit: 1796

**Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-201251 to Ota et al. in view of US 5,895,793 to Kitamura et al., as applied to Claims 7 and 13 above, and further in view of US 5,786,400 to Brock et al. The citations for JP 2002-201251 have been taken from the English-language abstract and machine translation of the document made available by the Japan Patent Office.

**Regarding Claim 15.** Ota et al. teach the method of Claim 13 but do not expressly teach the temperature at which the isocyanate and polyol components are reacted. However, Brock et al. teach a method of making a polyurethane foam wherein the isocyanate and polyol mixture are blended at a temperature of 20°C (Column 6, Lines 48 – 53). Ota et al. and Brock et al. are analogous art as they are from the same field of endeavor, namely rigid polyurethane foams. At the time of invention, it would have been obvious to a person of ordinary skill in the art to react the isocyanate and polyol components in the invention of Ota et al. at the temperature taught by Brock et al. The motivation would have been that the reaction temperature taught by Brock et al. provides advantages such as avoiding the decomposition of the reactants and providing a reaction rate that is practicable in industrial applications.

### ***Response to Arguments***

Applicant's arguments filed February 24, 2009 have been fully considered but they are not persuasive, because:

A) Applicants argument that Ota et al. does not render the claimed ratio between HFC-245fa and HFC-365fc obvious is not persuasive. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). See MPEP § 2144.05. The weight ratio range disclosed in Ota et al. is 1 to 75%, with 10 to 60% being a preferred range (¶0008). As both the broad range and one of the preferred ranges overlaps with the claimed range of greater than or equal to 60%, Ota et al. renders the range obvious.

B) Applicants argument of unexpected results is not persuasive. Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. “The law is

Art Unit: 1796

replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.” *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP § 2144.05. The applicant has failed to establish that range provides unexpected results.

Any differences between the claimed invention and the prior art may be expected to result in some differences in properties. The issue is whether the properties differ to such an extent that the difference is really unexpected. *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). See MPEP § 716.02. When the amount of compatibilizer is held constant (Examples 5, 9, and Comparative Example 4) the data of Table 3 shows that the dimensional stability increases with the amount of HFC-245fa. The three data points shows a linear relationship between the dimensional stability and HFC-245fa that moves in a predictable manner. As the data merely shows the superiority of the property as the amount of HFC-245fa rather than an unexpected change in dimensional stability, the criticality of the claimed range has not been established.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1796

***Correspondence***

Any inquiry concerning this communication should be directed to Mark Eashoo at telephone number (571)272-1197.

/Mark Eashoo/  
Supervisory Patent Examiner, Art Unit 1796

Mark Eashoo  
SPE  
Art Unit 1796